ABSTRACT

The morphology and growth of Monascus sp.KB20M1 Mucor rouxii and Rhizopus oligosporus were studied on MYS medium containing cassava starch as a C-source. The maximum dry mycelium weigh was produced by the condition of 250 rpm of rotary shaker at 30°C for 7 days which gave 11.24, 8.08 and 8.15 g/l, respectively. The analysis of FT-IR spectrophotometer on fungal mycelium of three-species showed the composition of chitin-chitosan by the detection of amide I group (1640-1660 cm⁻¹) and hydroxyl group (2920-2930 cm⁻¹). The chitin oligomers production was performed on fungal mycelium hydrolysis by biological method (chitinase) and chemical method (phosphoric acid). The retrieved product of chitin oligomers were varied due to the hydrolysis conditions and time-period. The O1 and O2 samples from enzymatic digestion and O3 sample from the chemical digestion were selected for the further study of biological activity on phalaenopsis growth. It was found that the chitin oligomers enhanced the survival and rooting of phalaenopsis. The phalaenopsis which was immersed in the O2 sample at the concentration of 1000-time dilution for 3 hr presented the maximal growth (p<0.01). The survival and rooting was found at 100% and the average length of rooting was about 94.00 mm.